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AUTHOR Salzano, Julienne
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ABSTRACT

An analysis of the introduction of computers into the New York City Police Department through intensive, structured interviews with personnel in 15 administrative offices and advice from computer experts led to the formulation of seven principles bearing on the success of computerization. The seven principles are as follows: (1) detailed planning is required before computers are introduced; (2) leadership must be supportive and must participate in training; (3) enthusiasm among workers ensures their participation; (4) a sense of ownership of equipment promotes a sense of responsibility and leads to increased use--workers should not share computers; (5) incentives, such as better hours and financial rewards, encourage worker participation; (6) training should be flexible and should involve peer support, classroom instruction, and resource personnel; and (7) experimentation with software should be part of the training sessions. The evaluation of the New York City Police Department's computer introduction process illustrated the following: (1) leadership must not only be supportive during computerization, but they must also participate in the training; (2) experimentation in the training process helps to reduce worker anxiety about computers; and (3) management support is needed so that trainers can prepare the curriculum to meet the needs of the organization. (KC)

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Training: A Solution to the Specific Problems of Introducing Computers to the Workplace.

JULIENNE SALZANO ED. D.

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Little is known about the types of education and training that are required to apply computers effectively in police operations. The purpose of this paper is to identify elements that are effective in introducing new technology in a police organization, what steps are necessary in bringing about the change to an automated system, and how training can help.

Largely on the basis of advice from highly regarded computer experts, (an IBM vice president, a Wang Communications training manager, an AT&T programmer and trainer, head of LILCO's computer training division, a researcher for the National Commission for Employment Policy, and the head of a university department on computers and training) I formulated seven principles regarding computerization which I tested against the experience of the New York City Police Department. To gather information on the department's computerization process, I conducted intense, structured interviews with personnel at 15 administrative offices in the winter of 1988.

The seven principles bearing on the success of computerization are as follows:

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1. Detailed planning is required before computers can be introduced into a police department.

To understand how police departments respond to change, one must look at critical elements that produce change. The first such factor is planning.

The New York City Police Department did little planning for the installation of computers. It did not perform an adequate needs assessment, and was, on the whole, completely unprepared for the process of implementing computers. The bureaus were in a quandary as to what they should do with the equipment.

The offices where the supervisor participated in computer training were best prepared for the use of the computer. Only in those offices did successful computerization take place. Informally, some offices made an attempt to plan the introduction process. Supervisors decided where the equipment was to be located, who was to be trained, what information was to be stored in the computer, and what applications were to be used.

2. Leadership must be supportive and must participate in training.

According to the experts managers need to enable their staff to finish the daily affairs.

One expert remarked, "It is important for top ... managers on downward in police departments to be involved in the computerization process. Chiefs, through captains, should have firsthand experience with the computer because they rely on information it generates for their own jobs."

Once top managers agree to learn how to use the computer, their subordinates will follow. In order to get top police officials to take an active part in the computerization process, trainers must consider the availability of the top management and schedule the classes accordingly. Many commercial computer companies are willing to train supervisors first. Their approach is based on the premise that supervisors will be using the computers first and that once supervisors feel confident on the computers, they will teach their subordinates.

Analysis of the New York City Police Department's computerization process revealed that support by supervisors, regardless of rank, was uneven. Most supervisors did not know how to be supportive of the introduction of computers. Some felt threatened by the computers, and this sentiment exacerbated the lack of support.

3. Enthusiasm among workers ensures their participation.

Employee participation in the automation process improves the likelihood of its successful adoption. Participation that includes lower-level staff members helps to facilitate the change.

A good training curriculum and instructor can inspire workers to become involved in the computer introduction process. The computer training instructors in the New York City Police Academy were unfamiliar with the equipment and software themselves. This was evident in their method of drilling students

in rote memorization of terms and in the limited applications they taught. Instructors gave their students no reason to participate in any way that exceeded minimum requirements -- that is, to be on time, sign the attendance sheet, sit down, and be quiet.

The only employees who were successfully trained were those who went outside for instruction or who were self-taught; these, in turn, successfully trained others.

4. A sense of ownership of equipment by the workers helps develop a sense of responsibility for the machine and software.

When organizations decide to automate, one of the first questions that arises is, How much? What will it cost to purchase the equipment, basic software, and special programs; to train personnel; and to pay for the time it takes to complete the transition? The initial costs of computerization may lead some organizations to take a more cautious route and computerize a little at a time.

One way to reduce the initial costs is to have personnel share computers. This practice is a common one, and in organizations where it has been followed, success in the automation process has been limited. Workers sharing a computer do not learn how to use the equipment.

A primary reason for the failure to automate is that workers often feel no responsibility to use and care for the equipment. The IBM expert said, "In numerous studies ... regarding the

sharing of office equipment, we have found that only one or two persons will use the computer with regularity at first. Everyone else in the office will not touch the machine, and eventually even the frequent users become nonusers." Similarly, the trainer from LILCO noted, in offices which one terminal, workers will avoid using the terminal because it means they know how to retrieve the information and that other workers will call upon them routinely for information, which generally results in their doing someone else's work."

A Washington researcher observed, "Many departments and companies make the mistake of purchasing only a few computers for workers to share, when it would be more cost-effective in the long run if each worker had one. Sharing a computer is equivalent to sharing a pencil to do work. There are problems in waiting for others to finish their tasks and in scheduling time to be at the computer. It takes time to remember the computer operations."

Three of the experts agree that ideally each worker who will need to use a computer will be assigned one. However, this is not always possible. The result is having too few computers. According to a public utilities trainer from LILCO, "When employees are forced to share, it creates a strain on some employees. Each time they approach the computer, they must first reconfigure the program, which takes up valuable time." Another expert trainer from WANG said, "Training workers who have to share computers creates a problem because they forget what they have learned during nonuse. Unfortunately, only one or two workers will master the computer."

The experts concur that workers sharing a machine are not learning to use the equipment and software as they were meant to be used. Thus, the machine will likely receive little or no use in the end, and there is no automation process.

In a few cases within the New York City Police Department, a computer was assigned to an individual, who took responsibility for figuring out how to use the machine and how to apply it to his or her work. Machines assigned to groups rather than individuals were pushed aside.

5. Incentives encourage worker participation.

According to the experts, most people are willing to yield to institutions that give them a sense of significance, security, self-determination. At the same time, however, employees prefer to have some control over their destinies. If they feel they have choices, they will persist in their tasks.

The power and skills gained through the use of computers may be incentive enough for some to learn about the new technology, but not for others.

The experts recommend that management give workers a list of incentives including added responsibilities and financial rewards -- as part of their training. Most employees are motivated by such incentives.

Workers like to feel they have choices in the change process. A good trainer and curriculum encourage personnel to participate by giving them a better understanding of the use of

computers in their jobs. Once workers realize the benefits derived from computers, they become more enthusiastic about learning how to use them. The benefit of the computers is incentive.

Since the New York City Police Department did not plan for the introduction of computers, worker incentives were never considered. There were more disincentives, in that officers felt deskbound, which meant a loss in status or a diminished chance for promotion. However, after learning to use the computer, some officers received better working hours.

6. Training should be flexible and should involve peer support.

A training program should be flexible enough to allow students to become familiar with the machine and software. This means that lessons should be long enough for each subject to be covered adequately and that instructors should accommodate the learning pace of the students in the class.

Training for an automation process should be designed to teach workers about the organization and its history, how to use the new technology, and how to fill their new job roles. The success of the training program is in some part related to the quality of the trainers. One expert stated, "Training should be tailor-made for the department, and after the initial formalized training is given, an expert troubleshooter should be left behind to supplement training."

Training is thus a two-step process. The first is formalized

classroom instruction. A classroom with computers is an ideal situation because each student is seated at a terminal, and a teacher is present who provides step-by-step instructions.

The experts recommend that training classes be formed according to participants' computer backgrounds. Students tend to be more comfortable this way, and the curriculum is designed to move with their pace in order to build comradery among workers. The classroom experience therefore becomes a catalyst for communication between workers and has the secondary benefit of team building for the organization.

Once formalized classroom training is over, it is important that the computer that workers were trained on be waiting for them at their desks. But with their first work task at the computer, workers may become anxious about a forgotten detail, a mistake, or a question that needs to be answered. Having a resource person available to answer questions or offer assistance to ease these anxieties and guide their personnel through the first work assignment is the second step in training. An expert can facilitate the transition from a manual operation to an automated one.

Having a resource person available after classroom training is so important that many vendors include an on-site expert in their sales package.

The New York City Police Department had no resource people to answer questions or guide new computer users. Nor did it structure training around peer support. Computerization was most successful in commands where peer training prevailed and formal

training was nonexistent.

Most department employees were enthusiastic about having advanced information tools and converting to an automated organization. Nevertheless there was much resistance, and little was done to reduce it. Officers and civilian workers were not given time to learn how to use the computer, and were not told of the overall purpose of computers within the department. Workers did not invest the time because they felt threatened.

In some cases, supervisors who had no knowledge of computer training expected both officers and civilian workers to do their daily tasks as well as to work with the computer. Usually these supervisors gave officers little or no extra time to learn how to use the computer, and many workers therefore abandoned the computer in order to continue with their daily tasks.

The officers interviewed, regardless of computer training, complained that they were not included in the decisions that affected their livelihood. In commands that had greater success in using the computer, there were egalitarian work groups; decisions were not handed down but discussed among officers and workers.

7. Experimentation should be a part of the training sessions.

To get workers to accept the change to accept the change to automation and to engender enthusiasm about the training program trainers should encourage workers to experiment with new software and equipment. This approach decreases worker anxiety about the

new equipment and gives the vendor a chance to work out any programming problems that may arise.

Experimentation not only allows new users to become familiar with programs and equipment it helps organizations maintain their computer capabilities by keeping abreast of the latest, most sophisticated software packages and machinery. Trainers, vendors, and researchers interviewed for this study agree that a direct relationship exists between training and successful introduction of computers. Opinions vary as to the optimum length and scope of the training, but three points have emerged. First, training should be customized to fit the organization. This means doing a needs assessment. By talking with workers and supervisors, trainers can get an overall sense of the organizational personality and shape their curriculum to it. Second, training should be formal: there should be a classroom with computers and an instructor. Third, an expert troubleshooter must be available at the work site to handle problems that arise.

Experimentation was never formally incorporated into the training for the New York City Police Department. Rather, it happened on an ad hoc basis. In those cases where experimentation did occur, the introduction of computers was successful.

8. The conclusion.

In conclusion, the evaluation of the New York City Police Department's computer introduction process illustrated that the leadership must not only be supportive during computerization of

an organization, they must also participate in the training. Experimentation in the training session helps workers to reduce their anxiety about the computers. Management should also take an active role in the decision-making process of a computerization plan, because without management's support and guidance, trainers will not be able to adequately prepare their curriculum to meet the needs of the organization.

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